

Facing China's demand for timber: an analysis of Mozambique's forest concession system with insights from Cabo Delgado Province

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SUMMARY

Over the past decade, China has become the main export destination for Mozambican timber. This market reconfiguration has come with growing criticism of ethnic Chinese actors from Mainland China and elsewhere, who have been accused of being the origin of ecologically deleterious illegal logging and trade. In this context, the aim of this article is to examine the timber concession and licensing schemes in Mozambique, the main instruments governing logging operations, and to investigate behavioural differences between Chinese and non-Chinese commercial actors with regard to these instruments. Using available qualitative and quantitative data for Cabo Delgado province, the analysis reveals indications for differences in the extent to which Chinese and non-Chinese timber operators manage to operate within the legal sphere despite incomplete compliance with formal requirements. The observation suggests that Chinese actors could adapt positively to an environment in which laws were more effectively enforced.

Keywords: Mozambique, China-Africa, forest concessions

Faire face à la demande chinoise de bois: une analyse du système de concession forestière du Mozambique à partir d'enquêtes dans la province de Cabo Delgado

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Au cours de la dernière décennie, la Chine est devenue la principale destination des exportations de bois du Mozambique. Cette reconfiguration du marché s'est accompagnée d'une critique croissante des acteurs chinois accusés d'être à l'origine de l'exploitation et du commerce illégal de bois, écologiquement désastreux. Dans ce contexte, l'objectif de cet article est d'examiner les instruments régissant les opérations forestières commerciales au Mozambique et d'explorer les différences de comportement entre les exploitants forestiers chinois et non chinois vis-à-vis ces instruments. En utilisant de données qualitatives and quantitatives disponibles de la province de Cabo Delgado, l'analyse révèle des indications pour des différences de comportement dans la mesure où les exploitants forestiers chinois et non chinois parviennent à opérer dans le domaine juridique, sans respecter les exigences formelles. L'observation laisse à penser que les acteurs chinois d'adapteraient positivement à un milieu où la loi serait plus efficacement appliquée.

Frente a la demanda china de maderas: un análisis del sistema de concesiones forestales de Mozambique, con un enfoque en la provincia de Cabo Delgado

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Durante la última década, China se ha convertido en la principal destinación de las exportaciones de madera de Mozambique. Esta reconfiguración del mercado ha sido acompañado por críticas crecientes de los actores chinos acusados de ser el origen de la tala e del comercio ilegal, ecológicamente devastador. En este contexto, el objetivo de este artículo es examinar los instrumentos que rigen las operaciones de tala comercial en Mozambique, y investigar las diferencias de conducta entre madereros chinos y no-chino con respecto a estos instrumentos. Utilizando datos cualitativos y cuantitativos disponibles de la provincia de Cabo Delgado, el análisis revela indicios de diferencias en la medida en que los madereros chinos y no chinos logran operar en el ámbito legal a pesar del cumplimiento incompleto de los requisitos formales. El comportamiento observado deja pensar que los actores chinos podrían adaptarse positivamente a un ambiente donde la leyes se aplicarían con mayor efectividad.

INTRODUCTION

For more than a decade, China has been the world's largest importer of tropical timber as well as the biggest producer and exporter of processed wood products such as furniture and carpentry products (ITTO 2012). While earlier studies emphasized the role of China as a centre of processing in global timber product markets serving Europe and North America (Zhu *et al.* 2004, White *et al.* 2006), more recent studies have begun to explore the effects of the now burgeoning Chinese domestic market in its own right (Kaplinsky *et al.* 2010, Huang *et al.* 2012). Although imports of African timber products represent only a small percentage of China's total wood imports, to the African forestry sector China's market is extremely important. Between 2000 and 2009, the share of Africa's timber exports to China increased from 35% to 78% of all timber exported from the continent, making timber the third largest commodity export after oil and mineral ores (Huang *et al.* 2012). In the context of this increase in the Africa-China timber trade, it is important to understand the potential effects on sustainability and the well being of local forest-dependent communities, and to what degree governance and law enforcement within producing countries are equipped to prevent or mitigate potential deleterious effects (see, e.g. Canby *et al.* 2008). Nowhere are these questions more relevant and timely than in the case of Mozambique's timber industry, which is heavily geared towards producing timber for the Chinese market.

Mozambique is among the top five African timber suppliers to China (Canby *et al.* 2008), and the lead supplier of wood from dry forest Africa (Jansen and Kiala 2009). Between 80–90% of the exported Mozambican timber is destined to Chinese markets, mainly in log form (Canby *et al.* 2008, German and Wertz-Kanounnikoff 2012). Since 1999, forest concessions constitute the main public instrument to promote sustainable forest management in Mozambique. Ten years later, 167 forest concessions were allocated throughout the country, including to Chinese operators in Zambézia (Mackenzie and Ribeiro 2009) and Cabo Delgado (Ekman *et al.* 2012, German and Wertz-Kanounnikoff 2012). Despite these efforts, there are documented concerns regarding the sustainability of current logging practices Mozambique (e.g. Bossel and Norfolk 2007, Mackenzie 2006, Mackenzie and Ribeiro 2009), and perceived Chinese involvement (EIA 2012, 2013).

In the face of powerful Chinese demand for timber and Mozambican official policy aims in favour of forest concessions, the overall aim of this article is to analyse the forest concession system as the main policy instrument governing commercial logging operations in Mozambique. Specifically, the objectives are to (i) investigate how public agents and private operators respond to formal requirements of forest concessions, and (ii) examine for any behavioural differences between Chinese and non-Chinese operators.

The article is organized as follows. The next section provides a brief literature overview of the regulatory framework in Mozambique and Chinese involvement in Mozambique's forestry sector. Following the methodology, the analysis of

the forest concession system (with a special focus on differences between Chinese and non-Chinese operators) is presented. The paper concludes with a summary of the main findings.

BACKGROUND

Mozambique's forestry sector: historical and regulatory overview

After a slowdown of forestry operations following Mozambique's Independence in 1974, logging increased substantially since the peace accords were signed in 1992 (Bossel and Norfolk 2007, Siteo *et al.* 2003). According to data from Food and Agricultural Organization (FAO), total timber production in Mozambique grew from 1 million m³ in 1991 to 1.6 million m³ in 2009 (ForesSTAT, accessed 9 May 2012). While in the past, Mozambican timber exports were primarily destined to South African and European markets, China has quickly become the main export destination since the mid-1990s (Canby *et al.* 2008).

The Mozambican Constitution of 1990 specifies that all land and forest resources belong to the State. The main legal instrument governing forest resources in Mozambique is the *Forestry and Wildlife Act* (Law 10/1999) and the *Regulations to the Forestry and Wildlife Act* (2002). The *Forestry and Wildlife Act* recognizes customary rights to forest resources for subsistence purposes, and introduced logging concessions as a new regime to promote sustainable forest management (SFM) (Siteo *et al.* 2003).

There are two logging schemes in Mozambique, simple licenses and concessions. Forest concessions involve several responsibilities related to responsible forest management and domestic development objectives (Siteo *et al.* 2003). They were originally introduced to gradually substitute simple licenses, which were perceived to promote unsustainable use of forest resources, and to promote the development of a domestic timber industry (*ibid.*). Concessions are allocated to individuals, private companies or communities for commercial purposes with up to 50 years duration (renewable for equal periods upon the request of the concessionaire) and reserved for production forests, i.e. forests with potential for commercial timber exploitation as classified by the most recent national forest inventory (Marzoli 2007). They require a government-approved management plan, based on a detailed forest inventory, and the possession of timber processing facilities. Note that unlike in other Central African countries where concessions are allocated *conditional* the provision of a management plan within the first three years, the management plan constitutes a pre-requisite for applying for a forest concession in Mozambique. Guidelines for the elaboration of management plans exist (Siteo and Bila 2002), but there are no formal specifications for the required processing facilities. Additionally, concessionaires need to obtain an annual harvesting license, which specifies the authorized volumes and species to be cut.

Simple licenses are essentially a harvesting permit, with a validity of one year and a maximal annual harvesting quantity up to 500 m³. Before the introduction of forest concessions in 1999, simple licenses constituted the only license for timber harvesting. Recent revisions to the Forest and Wildlife Law (Decree 30/2012) limit the operating area for simple licenses to 10,000 hectares. Simple licenses are reserved for Mozambicans and eligible in production and multiple-use forests for commercial and energetic purposes (Sitoe *et al.* 2003). Although simple licenses require a simplified management plan, no formal specification or guidelines for their elaboration are provided.

Compared to simple licenses, forest concessions involve significantly more responsibilities, which render simple licenses the more profitable option to the detriment of sustainability goals. This is also confirmed by empirical data: simple licenses accounted for about two thirds of the authorized timber volumes during 2006–09 (Sitoe *et al.* 2012), despite evidence suggesting that forest operations under this scheme are not sustainable (Mlay *et al.* 2003, Sitoe *et al.* 2003) and a stated policy objective to reduce simple licenses (German and Wertz-Kanounnikoff 2012). The eligibility of both regimes to harvest in production forests puts simple licenses in direct competition with forest concessions further compromising official sustainable forest management aims.

Chinese presence in Mozambique's forestry sector: rationale and patterns

A number of market drivers within China have had a powerful influence in shaping forestry practices in Mozambique. One important market force refers to domestic consumer demand for (i) reproduction of Ming and Ching dynasty furniture, for which the more expensive and increasingly scarce rosewood species traditionally used are being substituted with African species (primarily *Swartzia madagascariensis*, *Combretum imberbe*, *Millettia stuhlmannii* and *Dalbergia melanoxylon*), (ii) solid wood flooring (primarily *Millettia stuhlmannii* and *Azelia quanzensis*), (iii) veneers for laminated flooring, and (iv) carvings (Mackenzie 2006). Other driving forces include U.S. and European consumer demand for processed wood products from China, the logging ban in China and the tendency to import wood in excess of current demand, and Chinese policies (e.g. tax exemption for unprocessed log imports) (German and Wertz-Kanounnikoff 2012). On the political level, an important driver of the expansion of China's business interests and material sourcing operations was the 'Going Out' strategy adopted by the Chinese Government in 2001, which encouraged overseas investments and under which overseas investments grew significantly (Huang and Wilkes 2011).

To meet China's demand for timber, Chinese traders used to source timber indirectly, through purchases from Mozambican loggers (German and Wertz-Kanounnikoff 2012, Mackenzie 2006). In this original model, employed exclusively in the 1990s and still prevalent in some locations, Chinese traders provided forward-finance and equipment on loan to Mozambican nationals holding simple licenses in

exchange for logs (German and Wertz-Kanounnikoff 2012, Mackenzie 2006). Note that technically, this practice stands in contradiction to the aim of the simple license regime intended for local consumption (e.g. house construction of furniture-making) rather than to supply the external market (German and Wertz-Kanounnikoff 2012). More recently, however, a shift has been underway towards a more direct involvement of Chinese actors through the increased acquisition of forest concessions (Ekman *et al.* 2012, German and Wertz-Kanounnikoff 2012). Reasons therefore include risks associated with the provision of credit, with too many simple license holders defaulting or side-selling (Mackenzie and Ribeiro 2009).

There are various reports pointing to illegalities in the Mozambican forestry sector, in part associated with the Sino-Mozambican timber trade. Reported irregularities include (i) illegal harvest (harvest in excess of licensed amounts, harvest without a license, or harvest in another area than licensed), (ii) violations of labour laws (e.g. illegal employment of foreign workers), (iii) illegal transit and purchase of timber, and (iv) illegal exports (exports of unprocessed logs of species classified as "first class", and under-reporting of volumes exported) (Mackenzie 2006, Mackenzie and Ribeiro 2009, Ribeiro and Nhabanga 2009, MF 2010). Mirror statistics indicate that the quantity of exported logs in total timber exports from Mozambique to China are three to five times higher than the officially recorded volumes, especially since 2008 (German and Wertz-Kanounnikoff, 2012). According to a recent report, 48% of China's 2012 imports from Mozambique were unlicensed, hence technically illegal (EIA 2013).

METHODS

The overall aim of this article is to analyse the effectiveness of the Mozambican forest concession system in promoting sustainability aims in the face of Chinese demand for timber. Specifically, the objectives are to (i) investigate how public agents and private operators respond to formal requirements of forest concession contracts, and (ii) examine for any behavioural differences between Chinese and non-Chinese operators.

Following the new institutional economics literature (see, e.g. Richter and Furubotn 2003), notably the theory of contracts, the analysis focuses on key institutional facets of the forest concession system – contract allocation and contract enforcement – rather than on the range of technicalities associated with concession systems.

The analysis adopts a comparative approach of Chinese versus non-Chinese operators. A number of studies have considered the degree to which state agency in Africa moderates the design and outcomes of Chinese engagements in trade and international development (Alemu and Scoones 2013, Mohan and Lampert 2013), and how these differ between Chinese and non-Chinese (e.g. OECD members) partners on the continent. Using empirical evidence acquired through in-depth on-the-ground research is critical to provide "more nuanced,

disaggregated and critical lenses into the existing and potential risks that undermine the sustainability of Chinese investments (Zhao 2013). A comparative assessment is also important given the degree of negative press that has surrounded Chinese investment in Africa and particularly the Chinese timber trade (see, e.g. Laurance 2012), and empirical research is especially required given the biases that have been observed between perceptions of “China” and various types of mainland Chinese and other ethnic Chinese state and non-state corporations and individuals active in Africa and elsewhere (Mawdsley 2008, Putzel 2008). For these reasons we do not shy away from comparing “Chinese” vs. other interest groups active in the Mozambique timber sector, while endeavouring to disaggregate and apply precision to our categorizations of actors.

Cabo Delgado was selected as case study region for the following reasons. First, it is among the forest-richest provinces in the country with still significant shares of primary forests. Second, Mozambican timber trade increased dramatically in the 2000s, expanding from Mozambique’s central province Zambézia northwards to Cabo Delgado (Mackenzie 2006, Ribeiro and Nhabanga 2009). Third, by 2009, it belonged to the provinces in Mozambique with the highest concentrations of forest concessions, only exceeded by the traditional logging hotspot, Zambézia (DNTF 2009). Finally, apart from a few exceptions (e.g. Bossel and Norfolk 2007, Ribeiro and Nhabanga 2009), forest governance in Cabo Delgado remains little studied.

To investigate how public agents and private operators responded to formal requirements of forest concession contracts, the analysis drew on both primary and secondary data sources. These included review of published and unpublished literature on forestry operations in Mozambique, including the official annual reports by the National Directorate of Lands and Forests (DNTF) of the Ministry of Agriculture (MINAG), and interviews with key informants from relevant stakeholder groups. Stakeholder groups were determined through key informant interviews and, where pertinent, complemented through snowball sampling. In total, twenty-six semi-structured interviews with key informants were conducted in Maputo and the capital of Cabo Delgado province, Pemba, in May 2012. To complement the information from Pemba and Maputo, the views of an operator committed to responsible forestry was included through an additional interview in Sofala province in June 2012. The overall sample of interviewees covered government agencies (6), timber operators (8), non-governmental organizations (6), donor agencies (2), and individual experts (4). A questionnaire (available from authors) was developed with questions varying according to the different groups interviewed. The interview data were analysed using qualitative content analysis techniques (Mayring 2003).

To examine for any behavioural differences between Chinese and non-Chinese operators, quantitative forest concession data from Cabo Delgado were analysed using exploratory data analysis techniques. The classification of forest concession by nationality was done in consultation with key informants from the provincial forest services in Cabo

Delgado. For a more nuanced analysis, allowing to capture any additional differences in the group of ‘non-Chinese’ operators, in total four groups of operators were differentiated: Mozambican, Chinese (incl. ethnic Chinese i.e. members of the Chinese diaspora beyond mainland China), European and others (incl. South Africa and Israel). To investigate the extent of compliance with formal requirements, available data from ‘operating’ concessions (i.e. with a valid annual harvesting license) in 2007 and 2009 were cross-tabulated by the presence of an approved management plan – as one proxy for formal compliance. Note that the only complete set of forest concession data available to the authors was from 2007 and 2009. The possession of an approved management plan is supposed to be a formal requirement for forest concessions. Any authorization of harvesting volumes to concessions without approved management plan would be against official policy, hence in this article termed ‘illicit’ formalization. For a better understanding of the extent of illicit formalization, the analysis was expanded by further cross-tabulating authorized timber harvesting volumes by (i) concessions *with* approved management plan (i.e. authorized, authorizeable harvesting volumes) versus (ii) concessions *without* approved management plan (i.e. authorized, non-authorizeable harvesting volumes). Note that although ‘licensed (harvesting) volumes’ give little indication of how much timber is actually being harvested (data not available to the authors), they still can inform about the relative demand for timber. To examine for Chinese versus non-Chinese differences in the contract enforcement process, available data for 2009 were cross-tabulated by the number and value of fines received – as proxy for infractions – and by operator groups. Note that the data for 2009 was the only data set available to the authors with sufficient level of detail.

Several limitations apply. First, the interview sample was relatively small, and some interviewees were likely to face conflicts of interests regarding the research topic. In part, key stakeholders (notably forestry officials and timber operators) expressed reluctance or research fatigue as regards the interview theme. Second, detailed, concession-level statistical data (time-series) were hardly available and risked being of questionable quality (e.g. inconsistent reporting, incomplete data sets). In turn, the information for this article had to be pieced together from a mixture of documented and verified facts, interviews and bar gossip, as well as non-attributable statements from informants. This inevitably leaves gaps and weaknesses. Third, the classification of forest concessions by nationality of management to examine behavioural differences between Chinese versus non-Chinese fails to capture the possibility of Chinese capital made available to non-Chinese concessionaires with tight business relationship with Chinese traders, thus likely acting similar to Chinese concessionaires. Fourth, the analysis of the compliance with formal requirements was built around the variable ‘presence of an approved management plan’, which falls short to capture the entirety of compliance and says little about ultimate outcome in terms of SFM. Because of these limitations, it is more important to look at overall trends and take note of outstanding patterns for further analysis and validation.

FINDINGS

Contract allocation*Application process*

Contract allocation rules define how well governments can respond to the challenge to select timber operators that have a better chance of implementing SFM whilst having incomplete information about them (Karsenty *et al.* 2008). In Mozambique, concessions (and simple licenses) are allocated on a 'first come, first serve'-basis meaning the concession for a given area is allocated to the first applicant who fulfils all requirements satisfactorily (Forest and Wildlife Regulation 12/2002). Although this approach seems convenient from an administrative perspective, it risks adverse selection by eliminating the possibility to allocate the concession to the most promising proposal from a public and sustainable forest management perspective. Despite these risks, two key informants – from an international non-governmental organization and a bilateral aid agency – considered the Mozambican forest concession policy as being well formulated overall but implementation to remain a major challenge.

The basis for obtaining a logging license is a direct request to the Head of the Provincial Services of Forestry and Wildlife (SPFFB). Analysis of all requirements occurs at the provincial level, except for the concession management plan, which is analysed at central level, by the National Directorate of Forests and Lands (DNTF) under the Ministry of Agriculture (MINAG). Concession applications for areas over 20,000 hectares are also analysed at central level, i.e. the Ministry of Agriculture for areas of 20,000–100,000 hectares size, and the Council of Ministers for areas over 100,000 hectares (Regulation to the Forest and Wildlife Law 2002).

According to several interviewees, forest concessions are more costly and time-consuming to obtain than simple licenses, making the latter an attractive alternative to concessions, an observation also confirmed by the literature (e.g. Mackenzie 2006, TecnoServ 2011). These respondents were from Cabo Delgado and included a senior forestry official, a representative from the association of timber operators, two simple license holders, two civil society representatives and one individual expert.

Allocation between Chinese and non-Chinese operators

Cabo Delgado counts a high concentration of forest concessions. In 2009, almost 20% of the 167 forest concessions in Mozambique were allocated in Cabo Delgado; the other hotspots being Zambézia (26.3%) and Sofala (17.4%) (DNTF 2009). According to official statistics, Mozambican operators constitute the largest group of concessionaires in Cabo Delgado, followed by the Chinese. Differentiated by country origin of management, Table 1 provides overview statistics for Cabo Delgado in terms of (i) the area size of total concession and (ii) of the compliance of operating concessions with key requirements: management plans and processing facilities.

The cross-tabulation of annually authorized harvesting volumes by group of operators, as depicted in Table 2, shows that throughout the four-year period, Mozambican and Chinese concessions combined were allocated the majority (ca. 60%) of licensed timber volumes: Mozambican concessions obtained each year almost 40% of the licensed timber volumes – more than any other group received in the same period –, followed by the Chinese who secured with 20–30% the second-largest volumes of licensed timber per year. European concessions were hardly present during 2007–2008,

TABLE 1 *Cabo Delgado: overview data on total and operating forest concessions (absolute count and percentage), by actor group*

| | Chinese | Mozambican | European | Other | Total |
|--------------------------------------|-------------|------------|-------------|-------------|-------------|
| Total concessions, 2010 | 9 | 13 | 4 | 4 | 30 |
| <10,000 ha | 1 (11%) | 1 (8%) | 0 | 0 | 2 (7%) |
| 10,000 – 50,000 ha | 4 (44%) | 8 (62%) | 2 (50%) | 1 (25%) | 15 (50%) |
| >50,000 (max 100,000) ha | 4 (44%) | 4 (31%) | 2 (50%) | 3 (75%) | 13 (43%) |
| Operating concessions, 2007 | 5 | 6 | 3 | 3 | 17 |
| <i>with approved management plan</i> | 2 (40%) | 4 (67%) | 3 (100%) | 1 (33%) | 10 (59%) |
| <i>with processing facilities</i> | 5 (100%) | 4 (67%) | 3 (100%) | 3 (100%) | 15 (88%) |
| Operating concessions, 2009 | 6 | 11 | 4 | 4 | 25 |
| <i>with approved management plan</i> | 2 (33%) | 8 (73%) | 3 (75%) | 3 (75%) | 16 (64%) |
| <i>with processing facilities</i> | 5 (83%) | 9 (82%) | 4 (100%) | 4 (100%) | 22 (88%) |

Source: own calculations using data from SPFFB-CD, 2011

TABLE 2 Licensed volumes for forest concessions in Cabo Delgado, by actor group, 2007–2010

| | 2007 [m ³] | 2008 [m ³] | 2009 [m ³] | 2010 [m ³] |
|------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Chinese | 5,700 (30.3%) | 5,930 (34.4%) | 16,900 (25.6%) | 7,100 (21.9%) |
| Mozambican | 7,453 (39.6%) | 8,314 (48.2%) | 25,990 (39.4%) | 12,240 (37.8%) |
| European | 850 (4.5%) | 150 (0.9%) | 10,750 (16.3%) | 3,990 (12.3%) |
| Other | 4,800 (25.5%) | 2,850 (16.5%) | 12,370 (18.7%) | 9,040 (27.9%) |
| Total | 18,803 (100.0%) | 17,244 (100.0%) | 66,010 (100.0%) | 32,370 (100.0%) |

Source: own calculations using data from SPFFB-Cabo Delgado

and received less than 20% of the total timber volumes licensed in 2009 and 2010. Within the four-year period 2007–10, the year 2009 sticks out and no particular explanation therefore (e.g. political event) was identified. At least on the basis of these data, the findings counterbalance the perceived role of Chinese actors in Mozambican timber operations. Still, the importance of Chinese as second-largest group of concession holders in Cabo Delgado cannot be neglected as well as the possibility that some Mozambican companies act as front-covers for Chinese, as described in German and Wertz-Kanounnikoff (2012).

Asked why Chinese were acquiring forest concessions despite apparent costs, a senior forestry official and a forestry consultant, both from Cabo Delgado, explained that a concession facilitates the timber exporting process as it covers the entire value chain. During earlier fieldwork by one of the authors, one Chinese operator from Cabo Delgado provided a different reasoning pointing to the need to secure a continued supply of timber over the next years (German and Wertz-Kanounnikoff 2012). Another explanation may refer to the aforementioned problems of the earlier business model, when timber was sourced primarily through forward-finance provided to Mozambican simple license holders in exchange for timber.

Compliance with formal requirements

Lenient compliance with formal requirements is a major concern in the concession allocation process in Mozambique. Although supposedly a pre-condition for granting concessions, at least until 2009, 55% of all forest concessions had no management plan (DNTF 2009). In Zambézia, very few concessions prepared a management plan or established the required industries, but all were still given licenses to harvest (Mackenzie 2006). Interviews with a civil society member from Maputo and a forestry consultant from Pemba revealed that the management plan is often only viewed as bureaucratic requirement rather than a support in the concession operations, and thus frequently of poor quality with incorrect or even falsified data. The latter being particularly true for Chinese concession applicants whose “management plans

are very simply” as observed by a forestry consultant from Cabo Delgado. However, the presence of concessions with poor management plans also suggests lenient enforcement of standards by the responsible authority, in this case the National Directorate for Forests and Lands (DNTF).

Using the presence of an approved management plan as one proxy for compliance with formal requirements, the analysis of forest concession data from Cabo Delgado allows the following observations. First, at least until 2010, forest concessions in Cabo Delgado were below 100,000 hectares, with Mozambican-run concessions being predominant in the medium-size class of 10–50,000 hectares (Table 1). Second, the group with the largest relative share of concession area operating *without* an approved management plan, shifted from Mozambicans (64% in 2007) to Chinese (41% in 2009) (Table 3). This can be attributed to the relative greater increase (from 2007 to 2009) in the number of Mozambican concessions *with* management plan, compared to Chinese concessions. Third, as depicted in Table 3, the group getting the largest relative share of licensed volumes for concessions operating *without* approved management plan shifted from the group ‘others’ (48% in 2007) to Chinese (64% in 2009). The Mozambican share was lower and decreased, from 25% (2007) to 12% (2009). Fourth, comparing across groups (see Table 3), the ratio of ‘authorized, authorizable’ versus ‘authorized, non-authorizable’ timber volumes (the latter referring to timber volumes that against official policy were authorized for concessions without approved management plan) indicates that the share of ‘authorized, authorizable’ timber volumes dominated in most cases – except for the Chinese in 2009, when their share of ‘authorized, non-authorizable’ exceeded the share of ‘authorized, authorizable’ (indicated by a ratio below 1). Fifth, the data on European concessions operating in 2007 and 2009 suggest a predominant compliance with official policy, with only one concession operating without approved management plan in 2009 (Table 1).

Taking into account the possibility of data inaccuracies, it is more important to look at overall trends rather than specific values. Still, the available data suggests that in general, and more pronounced in 2009, Chinese concession holders in Cabo Delgado manage to operate to a significant extent (compared to other actor groups) with official harvesting licenses allocated to them despite insufficient compliance with formal requirements, as exemplified here by the absence of an approved management plan. Timber that is cut and exported from such concessions would technically need to be considered as ‘illicitly formalized’, through insufficiently legal sourcing practices.

Nonetheless, when looking at overall trends, these simple analyses indicate that differences between Chinese and non-Chinese operators do exist. Specifically, there are differences in the extent to which different groups – notably Chinese operators – manage to operate within the legal sphere despite incomplete compliance with formal requirements. The findings counterbalance those of other studies noting no particular distinctive pattern of business practices by Chinese operators compared to other foreign groups in Cabo Delgado (Bossel and Norfolk 2007: 54, Ekman et al. 2012).

The presence of divergences between formal requirements and practical application suggests that either the government

TABLE 3 *Cabo Delgado: Compliance with management plan requirement by concession holders of different country origins, 2007 and 2009. Note: FC stand for 'forest concession'.*

| | Chinese | Mozambican | European | Other | Total |
|--|--------------------|--------------------|--------------------|--------------------|---------------------|
| 2007 | | | | | |
| Operating concession area with approved management plan [ha] | 131,012 (26.5%) | 188,748 (38.2%) | 74,375 (15.1%) | 99,810 (20.2%) | 493,945 (100.0%) |
| Operating concession area without approved management plan [ha] | 102,155 (16.5%) | 394,417 (63.6%) | 0 | 123,616 (19.9%) | 620,188 (100.0%) |
| Authorized timber volumes from FC with approved management plan [m ³] | 4,350 (31.2%) | 6,263 (44.9%) | 850 (6.1%) | 2,500 (17.9%) | 13,963 (100.0%) |
| Authorized timber volumes from FC without approved management plan [m ³] | 1,350 (27.9%) | 1,190 (24.6%) | 0 | 2,300 (47.5%) | 4,840 (100.0%) |
| Ratio authorized volume per ha FC area with approved management plan [m ³ /100 ha] | 3.32 | 3.32 | 1.14 | 2.50 | 2.83 |
| Ratio authorized volume per ha FC area without approved management plan [m ³ /100 ha] | 1.32 | 0.30 | 0.00 | 1.86 | 0.78 |
| Ratio authorized versus non-authorizable timber volumes | 3.22 | 5.26 | n/a | 1.09 | 2.88 |
| 2009 | | | | | |
| Operating concession area with approved management plan [ha] | 131,012 (14.6%) | 359,524 (40.0%) | 201,219 (22.4%) | 207,882 (23.1%) | 899,637 (100.0%) |
| Operating concession area without approved management plan [ha] | 168,651 (41.3%) | 134,641 (33.0%) | 25,135 (6.2%) | 79,960 (19.6%) | 408,387 (100.0%) |
| Authorized timber volumes from FC with approved management plan [m ³] | 7,100 (14.0%) | 24,210 (47.8%) | 9,500 (18.7%) | 9,870 (19.5%) | 50,680 (100.0%) |
| Authorized timber volumes from FC without approved management plan [m ³] | 9,800 (63.9%) | 1,780 (11.6%) | 1,250 (8.2%) | 2,500 (16.3%) | 15,330 (100.0%) |
| Ratio authorized volume per ha FC area with approved management plan [m ³ /100 ha] | 5.42 | 6.73 | 4.72 | 4.75 | 5.63 |
| Ratio authorized volume per ha FC area without approved management plan [m ³ /100 ha] | 5.81 | 1.32 | 0.05 | 3.13 | 3.75 |
| Ratio authorized versus non-authorizable timber volumes | 0.72 | 13.60 | 7.60 | 3.95 | 3.31 |

Source: own calculations using data from SPFFB-Cabo Delgado, 2011

has little capacity or little willingness to consequently fulfil its responsibility. Similar divergences between official policy and actual practice in the logging sector were observed in Zambézia (Mackenzie 2006). In this context, the current government initiative to review existing forest concessions with the intention to cancel those underperforming (DNTF pers. communication, May 2012) appears as valuable first step in the right direction.

Note that our assessment focuses on comparing harvesting practices from concessions *with* management plan versus concessions *without* management plan, considering that the latter would be against current policy and thus illegal. The assessment of the sustainability of authorized timber volumes – i.e. whether the authorized volumes are higher than the annually allowed cuts (AAC) – by operator group would be a useful refinement of our analysis but require more detailed data (including the AAC for each concession as defined by the concession-specific forest inventory), which was not available within the scope of this work.

Contract enforcement

Public enforcement capacity

Public enforcement capacity in Mozambique, both in terms of material and training, is severely limited. Reasons include budget constraints, small number of trained officers, and shortages of transportation means and equipment (Bila 2005, MICOA 2012). Available official data for Mozambique suggests a total of 364 forest enforcement agents in 2006 (DNTF 2006), which means one officer would on average be responsible for 110,000 hectares of forests, and for even higher surfaces in the provinces of Niassa, Tete, Cabo Delgado, and Zambézia. According to a university faculty member, one additional constraint refers to the low education level of enforcement agents. This observation is supported by data from DNTF, which state that almost half (47%) of the 435 agents across Mozambique in 2012 had lower than basic education levels.

Enforcement capacity in Mozambique is further hampered by a lacking application of a strategy to allocate available

resources to their most effective usage. Although Mozambique developed an enforcement strategy to support the implication of the Forestry and Wildlife Act (Bila 2005), it was never implemented as explained one insider.

According to interviews with forest sector exports from Maputo and Pemba, weak enforcement was also related to lacking vision and leadership. This was expressed through claims including “forestry is not a State priority” and “the State is not interested in doing things well”. The fact that according to a senior forestry official in Cabo Delgado, enforcement practices have changed little since the scandal in early 2011, when over sixty containers with illegal timber were confiscated at the port of Pemba (see German and Wertz-Kanounnikoff 2012), can be seen as one illustration of these claims.

Public enforcement practices

According to a university faculty member in Maputo, public enforcement practices in Mozambique focus on controls along road checkpoints and ports to verify the volume and species harvested, and sporadic visits to the harvesting areas in cases of denunciations. There is no systematic control in the actual logging areas, as explained by various respondents including two senior forestry officials from Cabo Delgado. Absent control in harvesting areas increases the risk of moral hazard whereby compliance with contractual agreements becomes lenient or even inexistent. Indeed, among frequently detected violations in Mozambique’s forest sector figure over-cutting, cutting trees with a lower than authorized diameter, and cutting outside the licensed area (Bila 2005, Mackenzie 2006). During a country-wide inspection of the implementation of management plans in 13 forest concessions in 2011, it was discovered that virtually all concessions were at some level violating their legal obligations (MICOA 2012).

The predominant penalizing measure is fining. The only dataset with sufficient detail on fined operators in Cabo Delgado dated from 2009. As depicted in Table 4, European and Chinese concession holders received the same number of fines, but of the total value of fines for 2009, Europeans account for almost half (46.5%), followed by Chinese with

TABLE 4 *Distribution of fines to concession holders, by country origin, 2009*

| | No. of fines [#] | Value of fines [MZN] |
|------------|---------------------|-------------------------|
| Chinese | 6 (37.5%) | 112,060 (30.5%) |
| Mozambican | 2 (12.5%) | 40,390 (11.0%) |
| European | 6 (37.5%) | 171,060 (46.5%) |
| Other | 2 (12.5%) | 44,382 (12.1%) |
| Total | 16 (100.0%) | 367,892 (100.0%) |

Source: own calculations using data from DPA-Cabo Delgado

almost one third (30.5%). Infractions include timber transport without necessary documentation (5), non-possession of timber registry (3) logging outside authorized area (3), logging without license (2), logging trees below minimum diameter (1), other (2).

This result seems counterintuitive considering the aforementioned positive records of compliance of European actors with concession requirements, and stated perception by one senior forestry official in Cabo Delgado that “generally, the biggest violations are done by Chinese operators” and another that “Chinese use forest concession contracts as cover up for illegal logging practices”. Note that 4 of the 6 fines to European-managed concessions in 2009 went to one company alone, whereas the other companies obtained and paid 1–2 fines at most. According to two forest concession holders (one Chinese, one non-Chinese) in Cabo Delgado, fines were perceived being ‘omnipresent’. One service provider in Cabo Delgado shared his observation that fines were being targeted especially to foreign actors perceived to have more capacity to pay fines.

Still, the results need to be interpreted with caution. It needs to be recognized that the information available to the authors might be incomplete. For example, while provincial level data count 16 fines for 2009, national statistics for the same province report 50 fines for the same year (DNTF 2009). Moreover, in the face of various reports of illegalities in the timber sector (e.g. Bossel and Norfolk 2007, Mackenzie 2006), the number of fines seems rather low considering i) the number of concessions (25) operating in Cabo Delgado in 2009, ii) the frequent discoveries of unlicensed timber and illegal transports, and iii) the existence of at least 7 control posts in Cabo Delgado (DNTF 2006). There might however be changes underway. The officially reported tripling of the number of fines from ca. 40–50 fines issued per year in Cabo Delgado during 2009–10 (DNTF 2009, 2010) to 158 in 2011 (DNTF 2011) suggests more enforcement activity as the number of fines appear getting closer to the actual number of infractions in practice.

Official data suggest a high rate of fine paying: in 2011, 79% of the 1283 recorded forest fines in Mozambique were paid (DNTF 2011). Although several respondents claimed that “nothing happens if fines are not paid”, senior forestry officials in Pemba and Maputo explained that having no outstanding fines to pay is a formal requirement for license renewal. The latter may explain the apparent high proportion of fines being paid especially, by concession holders who unlike simple license holders or *furtivos* cannot afford not paying fines by applying for a new license under another person’s name. At the same time, however, there is scope for detected crimes not getting formalized into fines, as noted by one key informant.

Concerned with the sustainability in the forest sector, the Mozambican Council of Ministers approved several revisions to the current law, including an increase of fines. Compared to the former regulation of 2002, fines were increased between 100–600% (Decree 76/2011). However, two key informants expect little improvements and rather fear that the higher fines will just increase corruption. This concern seems intuitive as the 600% increase in fines intends to deter illegal

operations with timber species classified as 'first class', yet precisely these species constitute the most demanded species for export.

Moreover, Mozambique's focus on fining as main enforcement measure stands in contrast with the current literature. According to the enforcement literature, high fines are not sufficient to enhance enforcement effectiveness; equal attention needs to be given to the probability of detection, prosecution and conviction (Robinson *et al.* 2010). Reasons against only applying large fines include the risk of socially wasteful avoidance activities that reduce the probability of an individual being caught and fined (e.g. Lear and Maxwell 1998, Malik 1990) and the risk of greater bribery when bribing is an option (Mookherjee and Png 1995) – as observed in Mozambique.

One additional second penalizing measure consists in the confiscation of material (chain saw, trucks) or products (logs). Confiscations occur mainly in response to apprehending unlicensed operators (*furtivos*) or illegal timber. Confiscated material can be released after a fine is paid. Illegal timber is either donated for public purposes (school tables), or sold through auctions. However, the possibility of buying (or even 'buying-back') confiscated timber during public auctions allows for 'laundering' of unlicensed timber, which constitutes a key element in illegal logging schemes (Nellemann 2012) and risks undermining the original enforcement purpose.

To promote consequent enforcement, the Mozambican Forest and Wildlife Law defines a fine-sharing incentive (Regulations to the Forestry and Wildlife Act 2002). According to that law, enforcement agents involved in the detection of a crime are entitled to 50%-share of the fine value. However, the implementation of this measure remains deficient, so the observation by four respondents, including two senior government officials, and a recent forest sector evaluation (MF 2010). Stated reasons therefore include slow processes taking several months, lacking harmonization across provinces on the actual share to be received by the different actors involved. In addition, one forest sector expert pointed to the structural difficulties faced by enforcement agents (low public salaries, or public salaries not paid on time), which further compromise the credibility of enforcement as illustrated by the claim "their salary is paid with fine revenue".

Private responses to public enforcement practices

In a context of lenient enforcement, timber operators were observed to comply only with the bare minimum of formal requirements. Interviews with individuals from civil society organizations and the logging industry confirmed earlier observations in other places (e.g. Mackenzie and Ribeiro 2009), that management plans are in most cases seen only as administrative requirement to obtain a concession title and do not play an effective role in the concession operations. There is also anecdotal evidence suggesting still missing or low quality processing facilities on concessions, and lenient compliance with promises made to adjacent communities (Mate *et al.* 2008).

Fining is the main enforcement measure, but respondents in the timber business in Cabo Delgado perceive fines as oftentimes being used abusively, as a private rent-seeking strategy of enforcement agents by turning fines into bribes. According to two forest sector experts, "everybody [inspectors] is corrupt, look at their houses", while a forest concessionaire from Cabo Delgado and another key informant from Maputo explained: "in Mozambique, it is extremely difficult to stay legal [i.e. receive no fine]". Indeed, according to the enforcement literature, bribes provide some form of informal regulation and can create an incentive for the agents to put more effort into apprehending individuals (Mookherjee and Png 1994). With the official fine-sharing requirement falling short of its desired objective, mainly because enforcement agents hardly receive the full 50% of the fine value (MF 2010), acceptance of bribes becomes an attractive alternative for forest enforcement agents in Mozambique.

In response to fines, timber operators in Cabo Delgado were observed to undertake strategies to avoid fines, a behaviour also witnessed in other places and reported to occur even with low fines (Robinson *et al.* 2010). Based on insights gained during fieldwork in Cabo Delgado, the avoidance strategies can be classified into two types: *ex-ante* (i.e. prior to a detection of legal violations) and *ex-post* (i.e. after a legal violation is detected). The first type, *ex-ante strategies*, refers to efforts to transport timber at night because of a lower probability to encounter enforcement agents or to 'prepare the terrain' through small courtesy presents (e.g. at check points) that are more in the order of petty corruption with the intention to establish a complaisant relationship with enforcement agents so that they 'look the other way' should there be need. The second type, *ex-post strategies*, aims at avoiding the formalization of the legal violations into a fine (or confiscation of material or logs). Strategies for the latter category include offering an unofficial on-the-spot payment of a sum lower than the fine value (but of immediate personal gain to the enforcement agent) and using influential connections that ultimately pressures the enforcement agent to 'look the other way'. As put by one key informant, "influence matters more than financial resources to circumvent laws". A variation of an *ex-post* avoidance strategy consists in contesting the fine by requesting a formal justification of the claimed infraction (as explained by one concession holder), a response sometimes also perceived by enforcement agent as 'negotiating' of a lower fine level. One reason for the previously reported greater share of fines to European actors may refer to the higher disposition of Mozambican and Chinese actors for *ex-ante* and *ex-post* fine avoidance strategies.

CONCLUSIONS

As China will continue to rely on imports for tropical hardwood species, at least in the near future (Sun and Canby 2010), Mozambique is likely to continue facing the challenges associated with the massive demand for timber and the emergence of Chinese forest concession holders, which undermines the country's sustainability aims in the forest sector. Enhanced knowledge about patterns of the access of Chinese

actors to forest resources and, as much as possible, differences in the degree to which actors of different national origins with variable histories in Mozambique, will help determine and inform adequate policy responses.

While it is important to recognize that behaviours vary from firm to firm and among individuals regardless of ethnic or national background, the preliminary analysis in this paper indicate that differences between Chinese and non-Chinese operators do exist, at least in Cabo Delgado. Specifically, there are differences in the extent to which different groups – notably Chinese operators – manage to operate within the legal sphere despite incomplete compliance with formal requirements, through ‘illicit formalization’. These findings counterbalance those of other studies noting no particular distinctive pattern of business practices by Chinese and non-Chinese operators in Cabo Delgado (Bossel and Norfolk 2007: 54, Ekman *et al.* 2012).

In the face of increased global interest in certification and timber legality verification systems, including in China (Sun and Canby 2010), the possibility for ‘illicit formalization’ can undermine global incentives for legal documentation. This illustrates that efforts towards sustainable forest management cannot be solved only through international efforts, but equally requires cooperation from timber supplying countries towards consequent enforcement of laws and policies.

The preliminary analysis of the behaviour of Chinese timber operators in Cabo Delgado further suggests potential for higher compliance if formal rules were consequently enforced – both during allocation and enforcement of concession contracts. Reasons therefore include the observed quest for remaining in the formal economy even though sometimes through illicit practices. However, Mozambique’s forest policy enforcement measures will need to go beyond fining to also include measures aiming at prevention and detection of environmental crimes.

Additional incentives and financial resources for measures to enhance forest governance in Mozambique may arise with the implementation of forest-based climate change mitigation action (REDD+), an effort that enjoys commitment within the Mozambican government and has the support from several international donors.

ACKNOWLEDGEMENTS

We are grateful to all the people that accepted to be interviewed for this research and acknowledge the valuable comments by Paolo Cerutti and six anonymous reviewers. This research was conducted as part of the project “Chinese trade and investment in Africa: Assessing and governing trade-offs to national economies, local livelihoods and forest ecosystems”, funded by the German Federal Ministry of Economic Cooperation and Development (BMZ-GIZ-BEAF Contract No. 81121785) and implemented by the Center for International Forestry Research (CIFOR) and the World Agroforestry Centre (ICRAF) in partnership with the University of Leipzig’s African Studies Institute. The research in Mozambique was conducted in partnership with the University Eduardo Mondlane (UEM), Faculty of Agronomy and Forestry Engineering,

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